

User Manual For M3-A04 MDVR Mobile Digital Video Recorder

Copyright ©2013-2015, Streamax Technology Co., Ltd
All Rights Reserved

Notice

The information in this manual was current when published. The manufacturer reserves the right to revise and improve its products. All specifications are therefore subject to change without any notice.

The purpose of this manual is to kindly aid the user for the operation for our MDVR (especially for GUI setting). The user should have a basic understanding of computer operation and basic knowledge of how to connect peripherals and make some settings.

Copyright

Under copyright laws, the content of this manual may not be copied, photocopied, reproduced, translated or reduced to any electronic medium or machine-readable form, in whole or in part, without prior written consent of Streamax Technology Co., Ltd (Copyright 2013-2015)

Guarantee & Warnings

1) Electrical Apparatus Safety

All installation and operation should comply with local electrical safety norms.

2) Transportation

In the process of transportation, storage and installation, please avoid heavy stress, violent vibration, impact and water splashing.

3) Installation

Install the equipment in accordance with the requirements, handle carefully. Do not heavily press the equipment before the MDVR installation is finished.

4) Requirements on Engineers & Technicians

All the work of checking and maintenance should be done by qualified technicians and engineers. We do not undertake any responsibility caused by unauthorized modifications.

5) Requirements on Environment

The equipment should be installed and stored in a cool and dry place, away from direct sunlight, flammable or explosive substances, etc. Keep gaps not less than 3cm around the device to facilitate ventilation for cooling.

6) Accessories

Make sure to use accessories from the manufacturer recommended in the attachment.

Insulate circuit ground and metal shell for all the peripherals.

Before installation, please open the package and ensure that all parts are included.

If there are any problems, please contact us as soon as possible.

CONTENTS

1. PRODUCT CHARACTERISTICS	5
1.1. OVERVIEW	5
1.2. FEATURES	5
1.3. FUNCTIONS	5
1.4. SPECIFICATIONS	6
1.5. SYSTEM DIAGRAM	7
1.6. EXTERNAL INTERFACE	8
2. QUICK START GUIDE	10
2.1. USER LOG IN	10
2.2. LOCAL VIDEO CHECK, PLAYBACK AND BACKUP	10
2.3. STORAGE DEVICE FORMAT	11
2.4. DUAL CARD RECORDING MODE	11
2.5. EVENT SETTING	12
2.6. SYSTEM UPGRADE	13
3. REFERENCE APPENDIX	14
3.1. STORAGE CAPACITY CALCULATION	14
3.2. FREQUENTLY ASKED QUESTIONS	14

1. PRODUCT CHARACTERISTICS

1.1. OVERVIEW

M3-A04 is a functional Mobile Digital Video Recorder specially designed for vehicle video surveillance and remote monitoring. It has a high-speed processor and embedded operating system, combining with the most advanced H.264 video compression / decompression technology, network, as well as GPS / BD positioning technology. It supports not only video recording in CIF, HD1 and D1 formats, but also vehicle travel information recording and wireless data upload. With center software it also achieves alarm linkage central monitoring, remote management and playback analysis. It is easy to use with simple design, multi-functions, superior anti-vibration, flexible installation and high reliability.

1.2. FEATURES

- 1) All the modules are connected with exquisite connectors, supporting quick disconnection, which is safe and easy to maintain.
- 2) Automatically detects and alarms if module failure occurs;
- 3) Combines mechanical anti-vibration and electronic anti-vibration.
- 4) Supports DC8~36V wide voltage input, suitable for 12V and 24V vehicle.
- 5) Uses dynamic coding technology, which adapts to the dynamic change of mobile network bandwidth, so as to ensure the continuity of video streaming.
- 6) Watermark technology: prevent data tempering and guarantee the video authenticity and legal efficiency.

1.3. FUNCTIONS

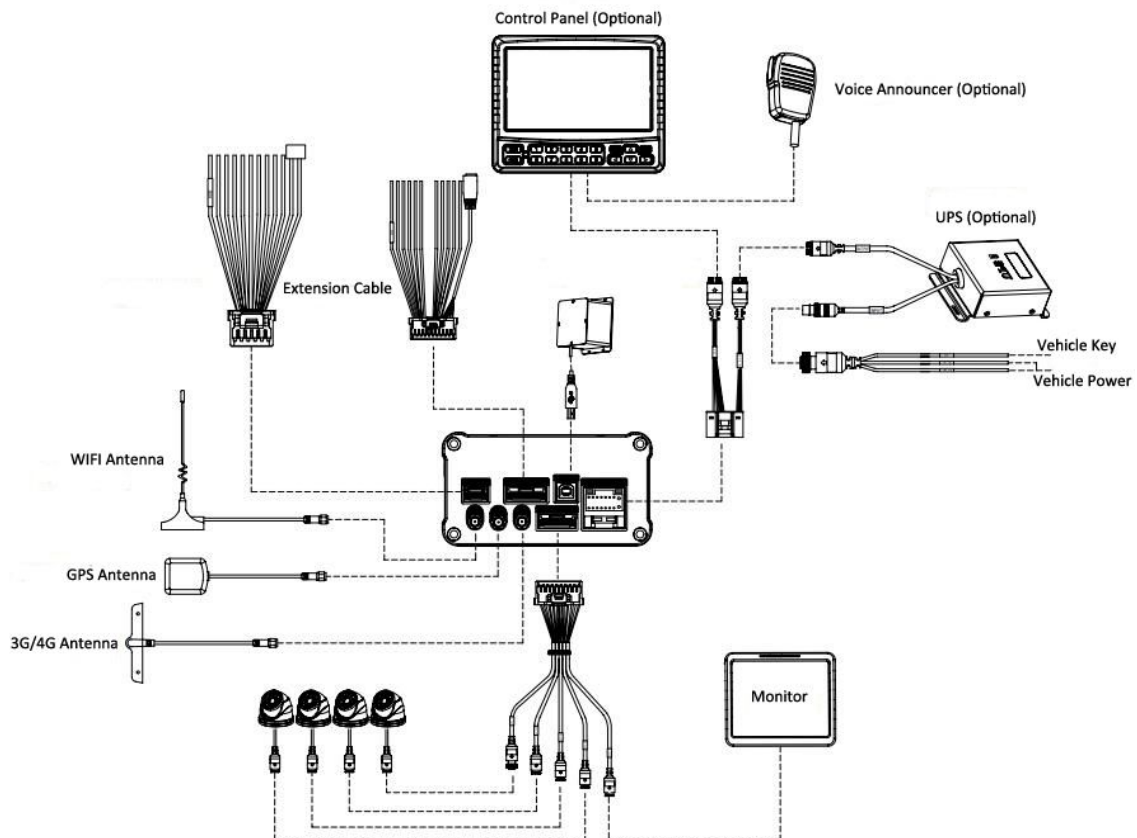
- 1) Local recording and video playback: D1/HD1/CIF resolution optional.
- 2) Driving recording: provides statistics on speed, turning, brake, reverse, opening door, etc.
- 3) Network function: supports break point uploading continually, which can realize the remote video surveillance, video download, remote alarming and network timing of the equipment, network setting and remote upgrade, etc.
- 4) High-speed backup: support high-speed backup through USB2.0, as well as backup through SD card.
- 5) User log: on-off status of the device, video loss, recording start time / end time, user log in / log out, modification of the device parameters, checking the time, GPS status.
- 6) Import and export of the configuration file: thumb drive import/export device parameters.
- 7) Device upgrade: supports local upgrade and remote upgrade.
- 8) Alarm linkage: supports linkage switch value output, image display, etc.
- 9) Storage formatting: formatting SD cards and external USB devices.

1.4. SPECIFICATIONS

Items		Technical Index
Product Series		M3-A04
Function Overview		Preview, Recording, Network, Playback, Location tracking
System	OS	Linux 2.6.24
	Control Mode	IR remote control, control panel, network
Video	Input	4 channels
	Output	1 channel
	Total Resource	400fps CIF @ PAL / 480fps CIF @ NTSC
	Video Signal Standard	Electrical level: 1Vpp; Impedance: 75Ω NTSC/PAL Optional
Audio	Input	4 channels
	Output	1 channel
	Audio Signal Standard	Electrical level: 2Vpp; Input impedance: 9.4Ω
Display	Display Split	1/4
	OSD	GPS information, alarm, temperature, voltage, device information, firmware version, MCU version, network information
	Operation Interface	Semi-transparent GUI
Recording	Video/Audio Compression	H.264/ADPCM
	Image Resolution	PAL: D1(704x576), HD1(704x288), CIF(352x288) NTSC: D1(704x480), HD1(704x240), CIF(352x240)
	Image Quality	1-8 levels adjustable (1 is the best)
	Recording Mode	Manual/Schedule/Alarm (sensor trigger, speed, acceleration, video loss, temperature)
	Post-recording	0-30minutes
	Mirror recording	Internal SD card mirror recording / External fireproof box (Optional)
Playback	Playback Channel	1 channel by local playback, 1 channel by PC software, 4 channels playback
	Search Mode	Date/time, channel, event
Network	WIFI(Optional)	Supports 802.11n(Mirror recording or WIFI optional)
	3G/4G	EVDO/WCDMA/TDD/FDD
Locating	GPS(Optional)	Location tracking, speed detection and time sync
Interface	USB	USB2.0 × 1/2(Mirror recording or WIFI optional)
	SD	SD × 2
	RS232	RS232 × 2
	RS485	RS485 × 2
	Sensor	8 inputs, 2 outputs
	Speed	1 channel pulse speed detection

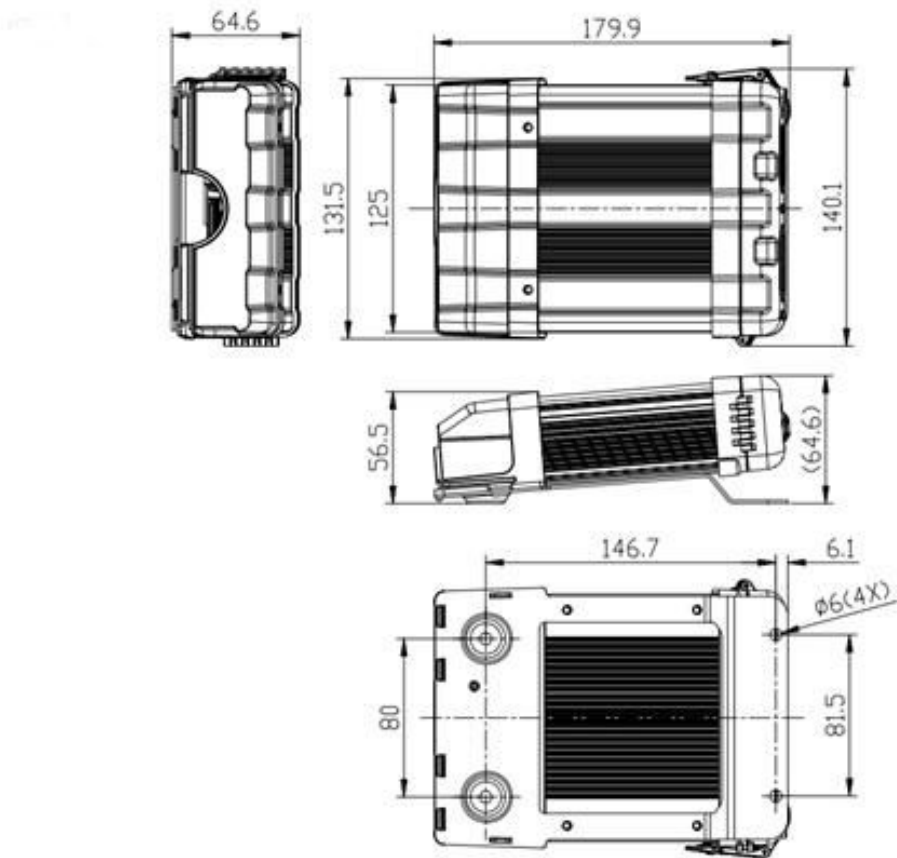
	Panel	Control panel CP4 (Optional)
Power	Input	DC8-36V
	Output	1A@12V, 1A@5V
	Current	Working current: input 13.5V@1.6A, 27V@0.7A Standby current: 0A
Physical Characteristic	Dimension (L x W x H)	180x140x64.6mm
	Weight	0.75Kg
Operating Environment	Temperature	-25℃ - +60℃
	Relative Humidity	8%-90%
Certificates		CE, FCC, ISO16750-3

1.5. SYSTEM DIAGRAM

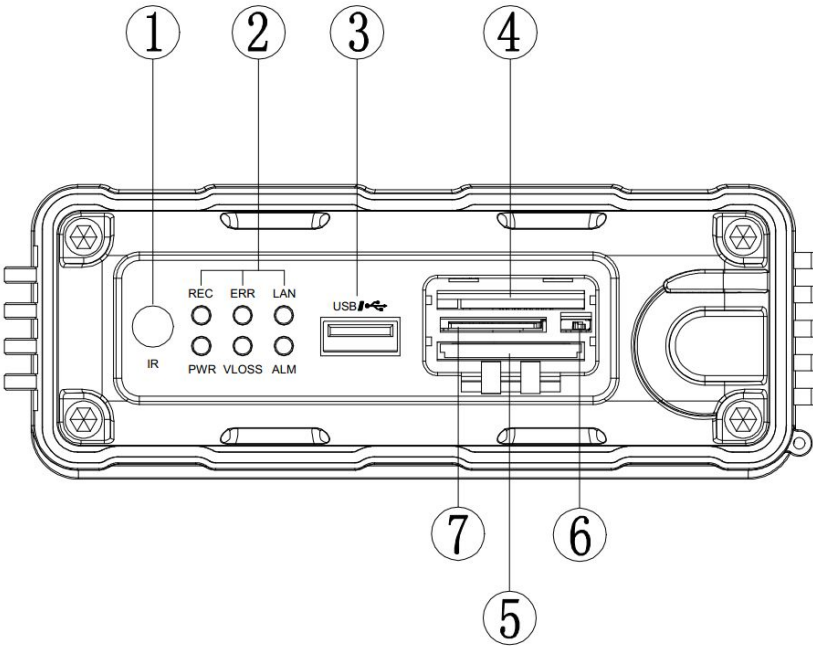


1.6. External Interface

Dimension

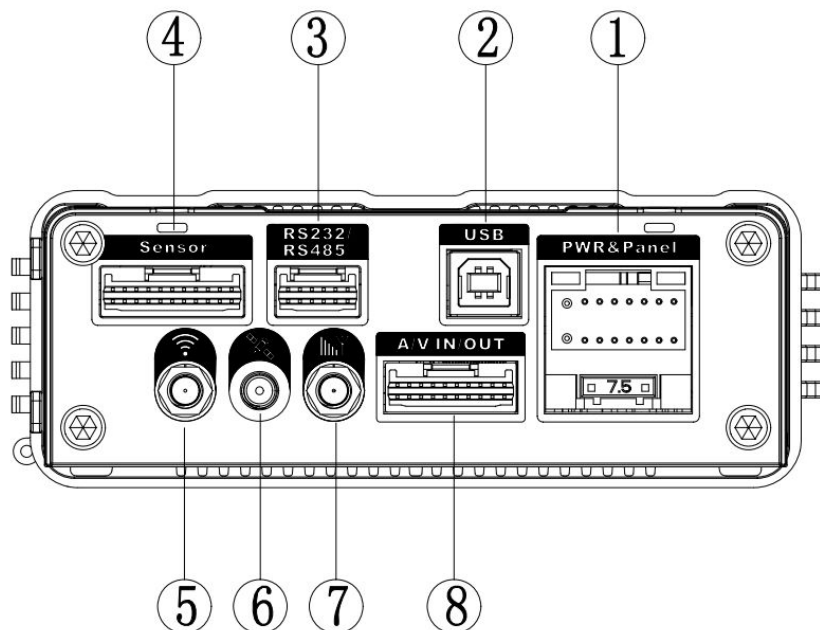





Front Panel



Serial No.	Name	Description
1	Remote control infrared receiver port	For receiving the remote control signal
2	REC	Record light
	ERR	Error light
	GPS	GPS state light
	PWR	Power light
	VLOSS	Video loss light
	ALM	Alarm light
3	USB port	For upgrading, export video
4	Main card	Record fireproof box information in mirror recording
5	Vice card	Record video in mirror recording
6	Front shell mechanical switch	Shutdown to protect when opening the door
7	SIM card slot	To insert SIM card

Rear Panel



Serial No.	Print	Description
1	PWR&Panel	Power input&Control panel (CP4)
2	USB	USB port
3	RS232/RS485	Serial port
4	Sensor	Alarm input/output port
5		WIFI antenna port
6		GPS antenna port
7		3G/4G antenna port
8	AV IN/OUT	Audio / Video input and output

2. QUICK START GUIDE

2.1. USER LOG IN


- 1) After the device turn on, press LOGIN/LOCK or SETUP to enter the GUI as follow.

USER LOG IN

DEVICE NO. : (0)

PASSWORD :

- 2) **Enter Device No.:** Input the number according to the number in the bracket.

- 3)  **Enter Password:** Video searching and information menu checking are available if you log in with the user password while device parameters setting is possible with administrator password.

User default password is 22222222, and Admin password is 88888888.

2.2. LOCAL VIDEO CHECK, PLAYBACK AND BACKUP

- 1) **Video Check:** It could search according to file types, video channels, date/time and start time. The file types include All and Alarm (Green module indicates general record while red module points to alarm record).

FILE SEARCH

S	M	T	W	T	F	S
				01	02	03
04	05	06	07	08	09	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

SOURCE: HDD/SD 

TYPE: ALL 

DATE: 2011-12-08

The search results will be shown as follows.



- 2) **Video Playback:** Choose the channel and time, click ENTER to playback.
- 3) **Video Data Export :** When there are videos available at the channel you choose, click the button and you could export all the videos during the time to the storage device connected via USB.

2.3. STORAGE DEVICE FORMAT

Format: User can format both hard disk and external storage device by entering into following path in GUI: System>>Format



Format new hard disk and SD card when used at the first time.



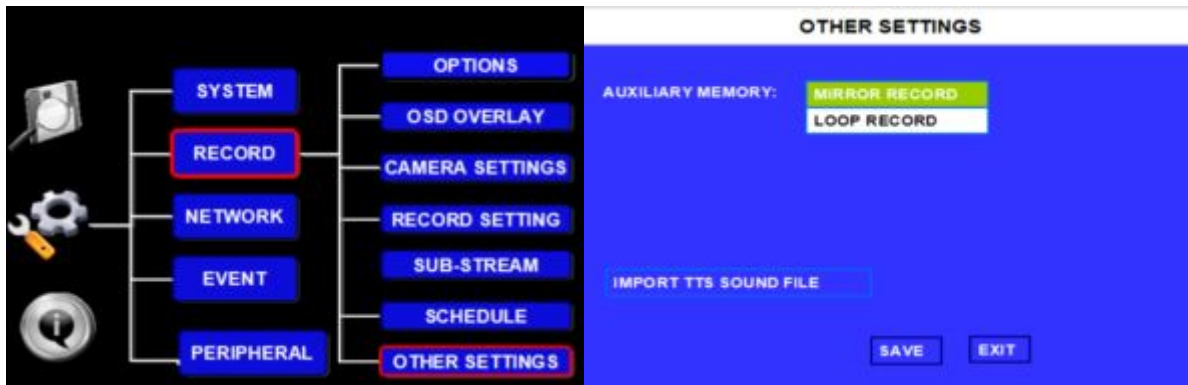
2.4. DUAL CARD RECORDING MODE

M1-A04 supports dual card loop recording and mirror recording, you can change this in RECORD >> OTHER. It will automatically format when you change the setting.

Make sure the two SD cards share the same capacity, brand and batch.

Instructions:

- 1) The device will use another SD card when current SD's space is less than 768M.
- 2) When both SD space is less than 3G, the device will start to cover until the remaining space is larger than 4G.
- 3) It will cover the earliest record when the device is covering the record.



2.5. EVENT SETTING

Remark: The event points to the record produced by the trigger signal of sensor/video loss, acceleration etc.

1) Sensor Setting

SENSOR						
NO.	ENABLE	NAME	OSD	SET	ALARM	LOCK
S1	ON	PANIC	PS	HIGH	ON	OFF
S2	OFF	F-DOOR	FD	LOW	OFF	OFF
S3	OFF	R-DOOR	RD	LOW	OFF	OFF
S4	OFF	BRAKE	BK	LOW	OFF	OFF
S5	ON	LEFT	LT	LOW	OFF	OFF
S6	OFF	RIGHT	RT	LOW	OFF	OFF
S7	OFF	RED WA	RW	LOW	OFF	OFF
S8	OFF	YEL WA	YW	LOW	OFF	OFF

EN: Off means the corresponding event just records the log instead of triggering the video. And the event information could be checked in the event file.

On means the corresponding event records log and triggers video.

NAME: User could customize the sensor name, such as open the door or reverse.

OSD: User could customize OSD. It will be embedded into the alarm video files when alarms happen. When playback the video, it displays OSD characters after pressing Enter.

SET: HIGH means it is effective to low level. It will trigger corresponding sensor signal when the voltage of sensor input pin is more than 3.8V.

LOW means it is effective to high level. It will trigger corresponding sensor signal when the input pin falls from the high voltage to 0V.

ALARM: Off means the trigger signal is normal event.

On means the trigger signal is alarm event.

LOCK: OFF means it will not lock it when the corresponding event is label U.

ON means the video file could be deleted after unlocking when the corresponding event is label L. (The unlock time could be set by the protect time parameter of lock file)

2) Sensor Linkage Response:

FULL DISPLAY: OFF means the function is off.

ON means the corresponding video channel will have full-screen display in straight once sensor signal is triggered.

ACTIVATE 3G: OFF means the function is off.

ON means it will activate 3G module to dial and upload snapshot once sensor signal is triggered.

2.6. SYSTEM UPGRADE

- 1) Please create one folder named **dvrupgrade** in root directory in thumb drive and then copy the software upgrade file to this folder.
- 2) Insert the thumb drive after the host boots.
- 3) After choosing System >> Upgrade, user needs to click Upgrade and then start to upgrade it.
- 4) The indicator LED of front panel flashes simultaneously when upgrading, and the screen pops up **System Update**.
- 5) After upgrading, the device will restart automatically and pops up **System Initializing**.
- 6) After restarting, check whether the version is the latest one in the menu Upgrade.



3. REFERENCE APPENDIX

3.1. STORAGE CAPACITY CALCULATION

1) Image Quality & Streams

	Image	1	2	3	4	5	6	7	8
Stream (Kbps)	D1	2048	1536	1230	1024	900	800	720	640
	HD1	1280	960	768	640	560	500	450	400
	CIF	800	600	480	400	350	312	280	250

2) Record File Size Calculation

Rec. file size for each channel is:

Recording time (s) x Stream (Kbps) / 8 / 1024 = File Size (MB)

e.g. The file size of the Image 1 with D1 resolution within 1 hour:

$3600 \times 2048 \text{ Kbps} / 8 / 1024 = 900 \text{ MB}$

3) Image Quality & Resolution

	Image Quality	1	2	3	4	5	6	7	8
Resolution	D1	900	675	540	450	395	351	316	281
	HD1	562	422	337	281	246	219	198	176
	CIF	351	264	211	176	153	137	123	110

3.2. FREQUENTLY ASKED QUESTIONS

1) The system can't start?

Usually this problem results from the incorrect power connection. Please follow below steps to check the power connection:

1. Check the input power, whether the power wire is connected correctly, whether the ground wire is connected back to the battery, and whether the fuse on the power wire is in good condition.
2. Check whether the ACC signal wire input to the power is with voltage higher than 7 V.
3. Check whether the device key is closed.

2) The MDVR restarts uninterruptedly?

Please follow below steps to check it:

1. Check whether the voltage of MDVR is insufficient. If the voltage is less than the start-up voltage of the device, the device would always restart.
2. The problem in hard disk/SD card may cause the failure to start. Take off the storage part and check

whether it is broken down.

3) The device can't record?

Usually this problem results from the storage disk or camera. Please follow below steps to check it:

1. Check whether the storage disk is installed, whether it is in good contact, and whether the disk can be read normally in computer.
2. Check whether the storage disk is formatted. The storage disk should be formatted before normally storing record files.
3. Check whether there is video signal input into the device from camera, and whether there is video/image on the screen.

4) There is no voice in record file?

Please follow below steps to check it:

1. Check whether there is an external pickup, or whether the camera features with the function of audio collection.
2. Access to Video Channel Settings, check if Audio is set on.
3. There must be video input into the channel for recording and it must record normally.

5) The GPS works abnormally?

Please follow below steps to check it:

1. Check whether the GPS antenna is installed correctly. There is a silk print logo on the GPS antenna holder behind the host device.
2. Check whether the antenna receiver is sheltered. It should not be covered by any stuff, which may cause it not to receive signals.
3. Environmental influence such as tree shades, being inside tunnel, driving near tall building or elevated roads, thunderstorms or other weather influence, etc. can also cause signal loss or receiving wrong signals.

6) The device can't shutdown in ignition switch mode?

Please follow below steps to check it:

1. Check if the ACC line connection mode is correct; and check whether there is voltage on ACC yellow line when the key is turned off.
2. If the device has been set with schedule recording, it can't shutdown if it is still during recording time of the task table.